

ABSTRACT

An electrostatic fluid acceleration and method of operation thereof includes at least two synchronously powered stages. A single power supply or synchronized and phase controlled power supplies provide high voltage power to each of the stages such that both the phase and amplitude of the electric power applied to the corresponding electrodes are aligned in time. The frequency and phase control allows neighboring stages to be closely spaced at a distance of from 1 to 2 times an inter-electrode distance within a stage, and, in any case, minimizing or avoiding production of a back corona current from a corona discharge electrode of one stage to an electrode of a neighboring stage. Corona discharge electrodes of neighboring stages may be horizontally aligned, complementary collector electrodes of all stages being similarly horizontally aligned between and horizontally offset from the corona discharge electrodes.